



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/572,981	03/21/2006	Franciscus Adrianus Cornelis Maria Schoofs	NL03 1162 US1	7644
65913	7550	07/23/2008		
NXP, B.V. NXP INTELLECTUAL PROPERTY DEPARTMENT M/S41-SJ 1109 MCKAY DRIVE SAN JOSE, CA 95131			EXAMINER TRAN, NGUYEN	
			ART UNIT 2838	PAPER NUMBER
			NOTIFICATION DATE 07/23/2008	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ip.department.us@nxp.com

Office Action Summary

Application No.

10/572,981

Applicant(s)

SCHOOF ET AL.

Examiner

NGUYEN TRAN

Art Unit

2838

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 and 24-26 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 13-18, 20, 21, 24 and 26 is/are rejected.
- 7) ☒ Claim(s) 3-12, 19 and 22 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 March 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 3/21/06
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of Group I, claims 1-22 and 24-26 in the reply filed on 04/28/08 is acknowledged.

Specification

The abstract of the disclosure is objected to because it contains the language of the claim (i.e. the word comprises). Correction is required. See MPEP § 608.01(b).

Drawings

Figures 1-3 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because the Applicant fails to provide a short description to identify the components indicated by the reference numerals (i.e. the blank diagrams in figure 4: 100, 101, 102; figures 6-8: 100; figure 9: 100a-b, 101, 102, 103, 104a-b; figure 11: 100, 1032). Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and

Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Claim Objections

Claim 9 objected to because of the following informalities: such as “circuit”).

Appropriate correction is required.

The claim 13 is objected to because they include reference characters (i.e. 103) which are not enclosed within parentheses.

Reference characters corresponding to elements recited in the detailed description of the drawings and used in conjunction with the recitation of the same element or group of elements in the claims should be enclosed within parentheses so as to avoid confusion with other numbers or characters which may appear in the claims. See MPEP § 608.01(m).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 13-18, 20-21, 24 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over D’Arrigo et al. (US 6218820) in view of Vinciarelli et al. (US 5432431).

Regarding claim 1: D'Arrigo et al. discloses **fig. 2** a load line regulated switched mode power converter for supplying an output voltage and an output current to a load the switched mode power converter comprising:

an inductor **16** a switch **6, 8** coupled to the inductor **16** a first impedance **42** a second impedance **14** and a power converter controller **fig. 2** comprising:

a first sense circuit **44** for obtaining momentary information on a first current (**current flow through 42**) flowing through the first impedance **42** the first current being related to the output current **I_o**,

means for determining a difference **28** between a zero load voltage **V_{ref}** and the output voltage **V_o** to obtain a difference signal (**output of 28**),

a second sense circuit **34** for obtaining further information (**output of 34**) on a second current (**current flow through 14**) flowing through the second impedance **14** the second current (**current flow through 14**) being related to the first current (**current flow through 42**),

an integrator **10, 30** for integrating a difference between the further information (**output of 34**) and the difference signal (**output of 28**) to obtain a correction signal (**output of 10**),

D'Arrigo et al. does not specifically discloses a switch controller for receiving the difference signal the momentary information and the correction signal to control the switch for obtaining a substantially zero correction signal in a steady state.

Vinciarelli et al. teaches that it is desirable have a switch controller for the purpose of turning the switch on and off at times when the current in the switch is substantially zero (Col. 3, lines 3-5).

Therefore, it would have been obvious to one with ordinary skill in the art at the time the invention was made to have modified the circuit of D'Arrigo et al.'s invention with the switch control circuit taught by Vinciarelli et al. in order to have the a switch controller for receiving the difference signal the momentary information and the correction signal to control the switch for obtaining a substantially zero correction signal in a steady state of D'Arrigo et al.'s invention with a reasonable expectation of success because Vinciarelli et al. teaches that it is desirable have a switch controller for the purpose of turning the switch on and off at times when the current in the switch is substantially zero (Col. 3, lines 3-5).

Regarding claim 2: D'Arrigo et al. discloses wherein the momentary information has a bandwidth for instantaneously regulating the power converter, and wherein the further information has a further bandwidth lower than the first mentioned bandwidth (Col. 3, lines 30-50).

Regarding claim 13: D'Arrigo et al. discloses **fig. 2** wherein the first impedance **42** and the second impedance **14** are the same common resistor and wherein the first current (**current flow through 42**) and the second current (**current flow through 14**) are the same current.

Regarding claim 14: D'Arrigo et al. discloses **fig. 2** wherein the first impedance **42** is an impedance of the main current path of the switch **6, 8**.

Regarding claim 15: D'Arrigo et al. discloses **fig. 2** wherein the first impedance **42** is arranged in series with the inductor **16**.

Regarding claim 16: D'Arrigo et al. discloses **fig. 2** wherein the second impedance **14** is arranged between an input **Vin** of the power converter **fig. 2** and a main current path (**current path through 8, 16, 42**) of the switch **6, 8** for sensing an average input current (**current input**)

of the power converter **fig. 2**.

Regarding claim 17: D'Arrigo et al. discloses **fig. 2** wherein the power converter is a down-converter comprising a series arrangement of main current paths (**current path through 8, 16, 42**) of the first mentioned switch 8 and a further switch 6, the inductor 16 being arranged between a junction of the main current paths (**current path through 8, 16, 42**) and an output of the power converter **V_o**, and wherein the common resistor 14, 44 is arranged in series with the main current path (**current path through 8, 16, 42**) of the first mentioned switch 8.

Regarding claim 18: D'Arrigo et al. discloses **fig. 2** wherein the means for determining the difference 28 comprises a third resistor 22, 24 arranged between a reference voltage (**ground**) and the output voltage **V_o** to obtain a difference voltage across **V_{FB}** the third resistor 22, 24 the difference signal (**output of 28**) being related to the difference voltage **V_{FB}**.

Regarding claim 20: D'Arrigo et al. discloses **fig. 2** wherein the power converter is a down-converter comprising a series arrangement of main current paths (**current path through 8, 16, 42**) of the first mentioned switch 8 and a further switch 6 the inductor 16 being arranged between a junction of the main current paths (**current path through 8, 16, 42**) and an output **V_o** of the power converter **fig. 2**,

a smoothing capacitor 18 is coupled to a terminal of the main current path (**current path through 8, 16, 42**) of the first mentioned switch 8 directed towards the input **V_{in}** of the power converter **fig. 2**, and the second impedance 14 is arranged between the input **V_{in}** of the power converter and the main current path (**current path through 8, 16, 42**) of the first mentioned switch 8.

Regarding claim 21: D'Arrigo et al. discloses **fig. 2** wherein the means for determining the difference **18** comprises a third resistor **22, 24** arranged between a reference voltage (**ground**) and the output voltage **V_o** to obtain a difference voltage across **VFB** the third resistor **22, 24** the difference signal (**output of 28**) being related to the difference voltage **VFB**.

Regarding claim 24: D'Arrigo et al. discloses **fig. 2** electronics apparatus comprising the switched mode power converter of claim 1.

Regarding claim 26: the method steps will be met during the normal operation of the apparatus described above. (**Examiner notes:** For method claims, note that under MPEP 2112.02, the principles of inherency, if a prior art device, in its normal and usual operation, would necessarily perform the method claimed, then the method claimed will be considered to be anticipated by the prior art device. When the prior art device is the same as a device described in the specification for carrying out the claimed method, it can be assumed the device will inherently perform the claimed process. In re King, 801 F.2d 1324, 231 USPQ 136 (Fed. Cir. 1986). Therefore the previous rejections based on the apparatus will not be repeated).

Claim 25 rejected under 35 U.S.C. 103(a) as being unpatentable over D'Arrigo et al. (US 6218820) in view of Vinciarelli et al. (US 5432431) as applied respectively to claim(s) 1 above, and further in view of Bernardon (US 20030214276).

Regarding claim 25: D'Arrigo et al. and Vinciarelli et al. discloses the limitations of the claim(s) 1 as discussed above, D'Arrigo et al. the output current of the switched mode power converter of claim 1 being supplied to a load,

but does not specifically disclose a personal computer the output current of the switched mode power converter of claim 1 being supplied to a processor of the personal computer.

Bernardon teaches that a switch mode power converter such as a voltage regulator having the output power provides to an electronic loads such as a computer processors are well known [paragraph 0004].

Therefore, it would have been obvious to one with ordinary skill in the art at the time the invention was made to have modified the switch mode power converter of D'Arrigo et al.'s having the output current supplied to a computer processors as taught by Bernardon invention with a reasonable expectation of success because Bernardon teaches that it is well known to do so.

Allowable Subject Matter

Claims 3-12, 19, 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Examiner's note: Examiner has cited particular figures, columns and line numbers in the reference applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teaching of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the

references in their entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

In the case of amending the claimed invention, Applicant is respectfully requested to indicated the portions(s) of the specification which dictate(s) the structure relied on for proper interpretation and also to verify and ascertain the metes and bounds of the claimed invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NGUYEN TRAN whose telephone number is (571)270-1269. The examiner can normally be reached on M-F 7:30-5:00, OFF every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ullah Akm can be reached on 571-272-2361. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Art Unit: 2838

NT

/MATTHEW V NGUYEN/
Primary Examiner, Art Unit 2838